groups and hydrogen-containing repeating units and C_1-C_{20} hydrocarbons of aliphatic, aromatic or mixtures of same, optionally containing halogens.

b) A surfactant based on perfluoropolyether chains *with salified carboxylic end groups (i)*, the surfactant has a number molecular weight M_n comprised between 400-600 and a of molecular weight distribution such that *fractions having a M_n greater than 700 are present in an amount less than 5% by weight (ii).*

Applicants have surprisingly found that by using the compositions of combined (i) and (ii), in a VDF microemulsion polymerization process, it is possible to obtain PVDF exhibiting a high thermal stability and improved levels of white index even after thermal treatment at high temperatures.

The surfactants, generally used in the PVDF synthesis and described in the patent literature, are not completely removed after the coagulum step, washing and drying. Between 150-600 ppm of the surfactants are still present on the final product powder (see the specification on page 11, lines 17-24).

The residual surfactant causes discoloration of the final polymer after thermal treatment resulting in low levels of white index.

The applicants have unexpectedly found that the use of the surfactant based on perfluoropolyethers with salified carboxylic end groups *within the above cited narrow distribution of molecular weight (MWD) as recited in claim 1,* enables one to obtain a final powder endowed with improved thermal stability, in comparison with salified surfactants *not having the MWD as recited in claim 1.*

The rejection of claims 1-12 under 35 U.S.C. § 102(b) as being anticipated by, or, in the alternative, under 35 U.S.C. § 103(a) as being obvious over Giannetti et al. (USP 4,864,006) or Abusleme et al. (USP 5,498,680 corresponding to EP 625,526) is respectfully traversed.

Giannetti et al. disclose a process for polymerizing and copolymerizing fluorinated monomers in the presence of perfluoropolyethers (PFPE) having neutral end groups and in the presence of fluorinated surfactants prepared in the form of an aqueous microemulsion.

Fluorinated surfactants employed in Giannetti's process are disclosed in the patent at column 4, lines 7-24. Suitable and preferred surfactants are those of the class of PFPE having one or two acid end groups.

It is clear from the disclosure of Giannetti that no process has been suggested or carried out in order to eliminate fractions of surfactants having molecular weight greater than 700. In all examples a surfactant having an average molecular weight of 632, which is outside of the claimed range, is used. Applicants have already provided a comparative example. Example 3 of the current application uses a microemulsion according to Giannetti's method, wherein the surfactant contains 28% by weight of fractions having a molecular weight greater than 700.

This surfactant, characterized by a wide distribution of molecular weight, is outside the conditions set forth in claim 1 of the present application. Therefore, this reference does not properly anticipate claimed invention. It fails to recite each and every element of the claimed invention. Nor does it solve the technical problem recognized by the present applicants. In fact, the surfactant used according to Giannetti causes the final polymer, possessing high values of residual surfactant powder, to have a poor white index. This is shown in tables 2 and 3 at page 18 of the present specification, wherein applicant is comparing Example 1 (the microemulsion according to the present invention), and Example 3 (the microemulsion according to Giannetti et al.).

In view of the above, the present invention is novel over Giannetti. Furthermore, in Giannetti there is no mention of a surfactant possessing characteristics (i) and (ii) of the present invention. Nor does Giannetti mention discoloration problems and

thermal stability of the final polymer. Consequently, one of ordinary skill in art would not infer, from this document, the compositions of the present invention and the methods for polymerizing VDF with greater thermal stability and improved levels of white index.

Abusleme et al. discloses a process for (co)polymerization of fluorinated olefinic monomers in the presence of an aqueous microemulsion comprising:

a) an aqueous solution;

b) a fluoropolyoxyalkylene having hydrogenated end groups and/or hydrogenated repetitive units; and

c) a fluorinated surfactant.

Abusleme et al. identifies their choice of fluorinated surfactants at page 5, lines 44-51. Abusleme recites " . . . it is always possible to add other surfactants, which can be selected from the products having the formula: R_f-X^- M^+, where R_f is a (per)fluoroalkyl chain C_5-C_{16} or a (per)flouropolyoxyalkylene chain, X^- is -COO^- or -SO_3, M^+ is selected from: H^+, NH_4^+, alkali metal ion."

The examples recite the use of a surfactant having the above identified formula where X^- is -COO^- and M^+ is K. The average molecular weight is about 580. The additional other conditions required as recited in claim 1 are not disclosed.

The object of Abusleme's invention is to obtain a remarkable reduction in the induction period of the polymerization process as compared with the same process carried out in the presence of microemulsions of perfluoropolyoxyalkylenes (see the specification at page 2, lines 12-16). In order to achieve this effect, no importance is given by Abusleme et al. to the specific surfactant. Furthermore, Abusleme et al provide no suggestion in order to obtain PVDF with improved levels of white index even after thermal treatment at high temperatures.

Therefore, one of ordinary skill in the art would not be able to appreciate from Abusleme's disclosure to a surfactant based on perfluoropolyether chains with *salified carboxylic end groups and having the particular distribution of molecular weight, as recited in claim 1 of the instant application,* is particularly suited to prepare PVDF with improved levels of white index even after thermal treatments at high temperatures. In fact, Abusleme et al. fails to mention surfactant having a narrow distribution of molecular weights which is a characteristics necessary to obtain the present invention results. Nor does Abusleme mention or disclose discoloration problems associated with final polymer after its thermal treatment at high temperature.

Abusleme et al uses a surfactant having *a wide distribution of molecular weights.* This is evident from the fact that Abusleme et al fails to disclose or suggest the elimination surfactant fractions having molecular weights greater than 700.

In view of the foregoing, applicants respectfully submit that the invention is patentable over Abusleme.

Thus it now appears that the application is in condition for reconsideration and allowance. Reconsideration and allowance at an early date are respectfully requested.

If for any reason the Examiner feels that the application is not now in condition for allowance, it is respectfully requested that the Examiner contacts, by telephone, the applicants' undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this case.

The Commissioner is authorized to charge payment for any additional fees which may be required with respect to this paper to our Deposit Account No. 14-1060.

Respectfully submitted,

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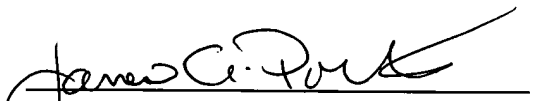
By: 

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